CHARACTERIZATION OF PREGNANT WOMEN EXPOSURE TO CD AND PB IN TAP WATER AND FRESH-FOOD IN CALI - COLOMBIA

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Background/aims: Previous studies have suggested that heavy metals could be associated with perinatal health effects among pregnant women in Cali-Colombia. Among pregnant women we characterized concentrations of Cd and Pb in water and local foods.
Methods: A sample of 60 women was selected out of 385 pregnant women included in a cohort study designed to evaluate the effects of environmental exposures on fetal growth. Tap water samples were monthly collected from the drinking water network and at women households during 11 months. Food samples were collected according to the frequency of consumption during the first and third trimesters of pregnancy for a group of local foods with potential bio-accumulation capacity: fresh-vegetables eaten raw (lettuce and cabbage), fish and some cow entrails (liver and kidney). In-sample Cd and Pb concentrations were determined with Atomic Absorption spectrometry coupled to Graphite Furnace. The Hazard Quotient (HQ) to estimate non-carcinogenic risk was calculated with data of height, weight and frequency of consumption collected via a questionnaire.
Results: Cd or Pb were detected in > 90% of 66 water samples, and 11% of them had lead levels above WHO limits. Among 122 food samples, 6% had Cd; and 27%, Pb. Among them, 67% and 28% exceeded FAO Limits for Cd and Pb, respectively. HQ estimations for Cd and Pb, in both water and food, were sometimes >1, suggesting risk of adverse effects in this population.
Conclusions: Our findings show that this population of pregnant women in southeastern Cali is exposed to Cd and Pb in water and food, and sometimes concentrations exceed the recommended EPA and FAO limits. This non-carcinogenic risk may affect fetus development.
References:

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